

FIG. 1
(Prior Art)

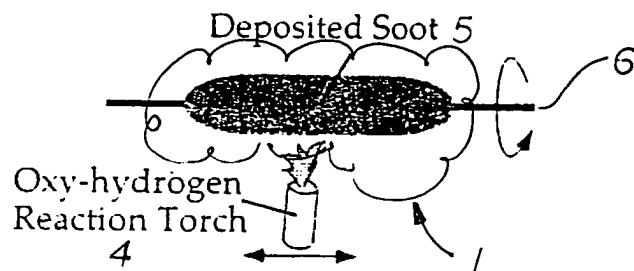


FIG. 2
(Prior Art)

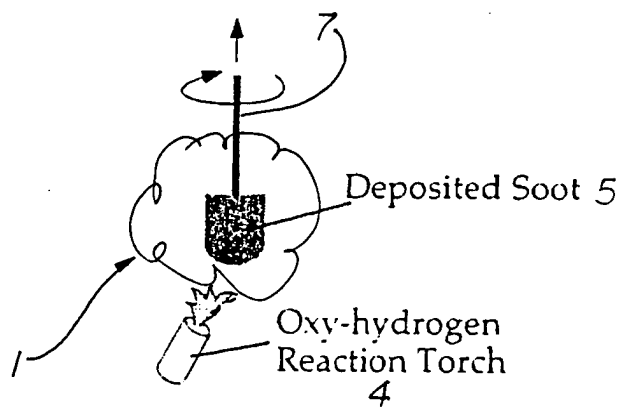


FIG. 3
(Prior Art)

FIG. 4

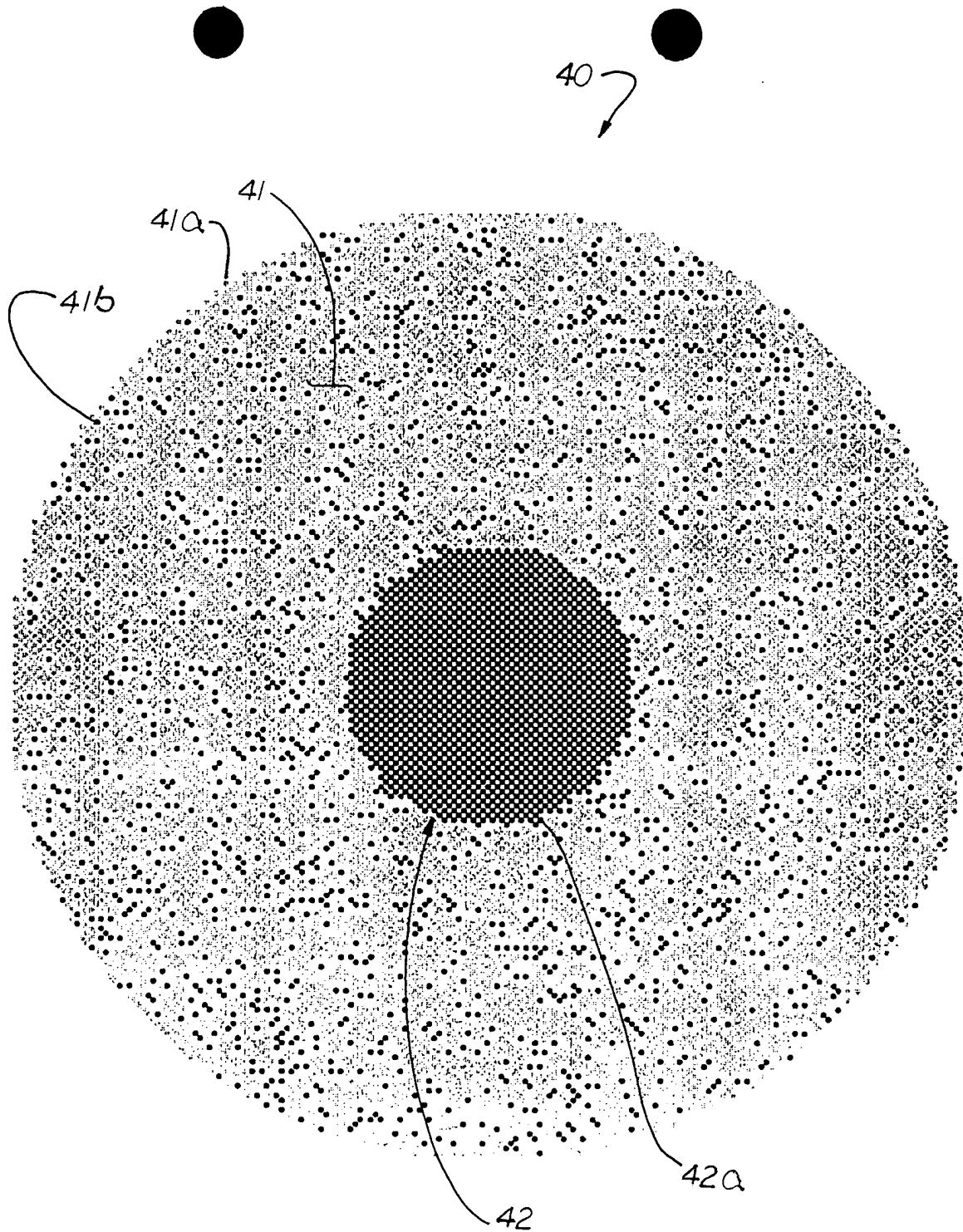


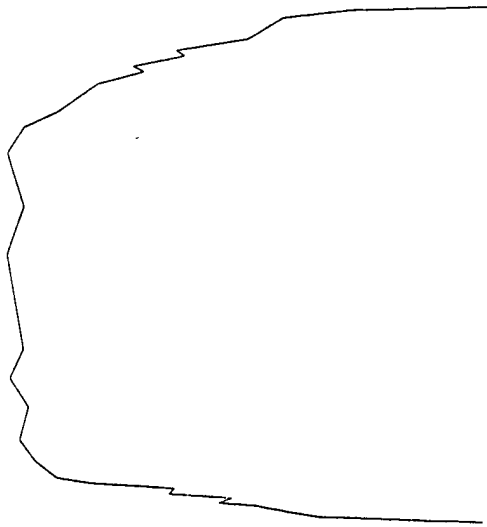
FIG. 4

The graph plots element concentration and refractive index against distance. The y-axis represents both 'element concentration, arb. units' and 'refractive index, arb. units', with a scale from 0 to 10. The x-axis represents 'distance, arb. units'. Two concentration curves are shown: Ge (dashed line with 'x' markers) and Er (solid line with 'o' markers). Both have two peaks, with the second peak being higher than the first. A refractive index curve (solid line with 'x' markers) also has two peaks, with the second peak being significantly higher than the first. An arrow on the right points upwards, indicating the direction of increasing refractive index.

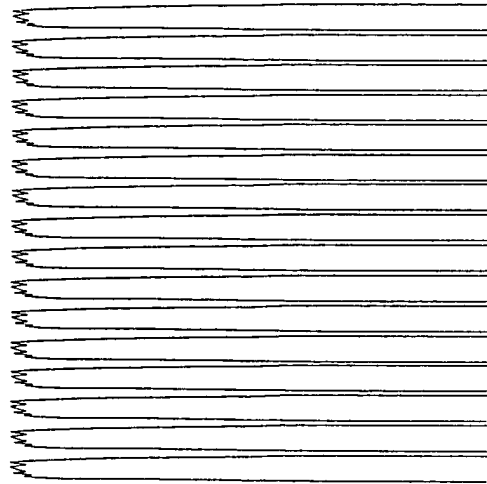
Distance (arb. units)	Ge Concentration (arb. units)	Er Concentration (arb. units)	Refractive Index (arb. units)
0	0	0	0
1	0	0	0
2	0.2	0.2	0.2
3	1.5	1.5	1.5
4	7.0	6.0	3.5
5	10.0	7.2	6.5
6	8.8	6.9	6.0
7	3.2	3.8	3.2
8	1.5	1.6	1.6
9	7.5	6.6	5.5
10	10.0	7.2	7.5
11	6.8	6.1	6.8
12	3.5	4.9	3.5
13	1.0	2.0	1.0
14	0.2	0.2	0.2
15	0	0	0

↑
refractive
index,
arb.units

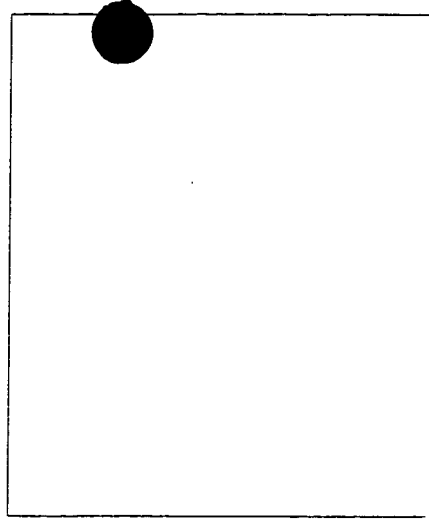
FIG. 6A



Index (or dopant) profile of core or cladding rod that has suffered the effects of burnout.



Index (or dopant) profile of a group of such rods bundled together.



Effective index (or dopant) profile seen by mode field in fiber fabricated from such a preform bundle.

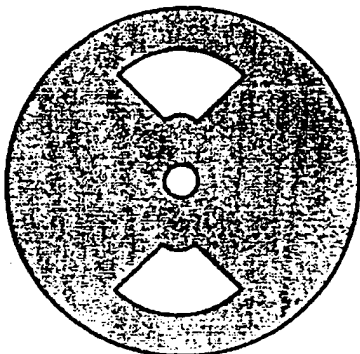
FIG. 6A

FIG. 6B

FIG. 6C

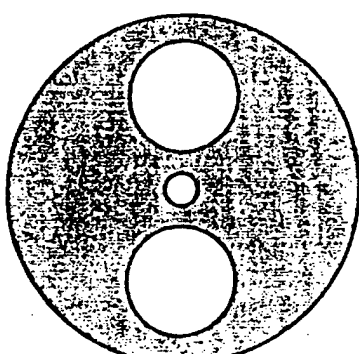
A circular halftone pattern composed of black dots of varying sizes and densities on a white background. The pattern is radially symmetric, with a central region of high dot density forming a diamond shape, which transitions into a sparser, more uniform distribution of dots towards the outer edge of the circle.



[illegible]

Bow-tie

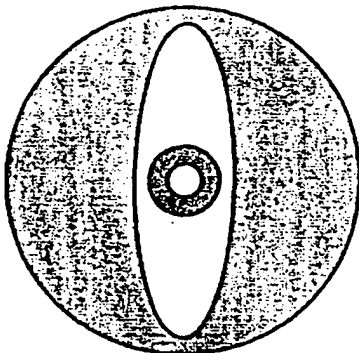
FIG. 8A



Panda

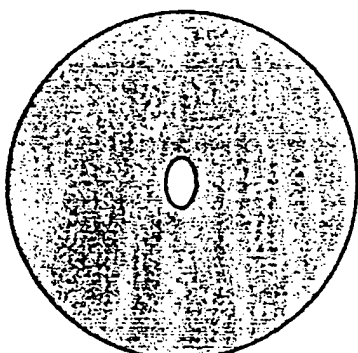
FIG. 8B

Prior Art



Oval-Inner Clad

FIG. 8C

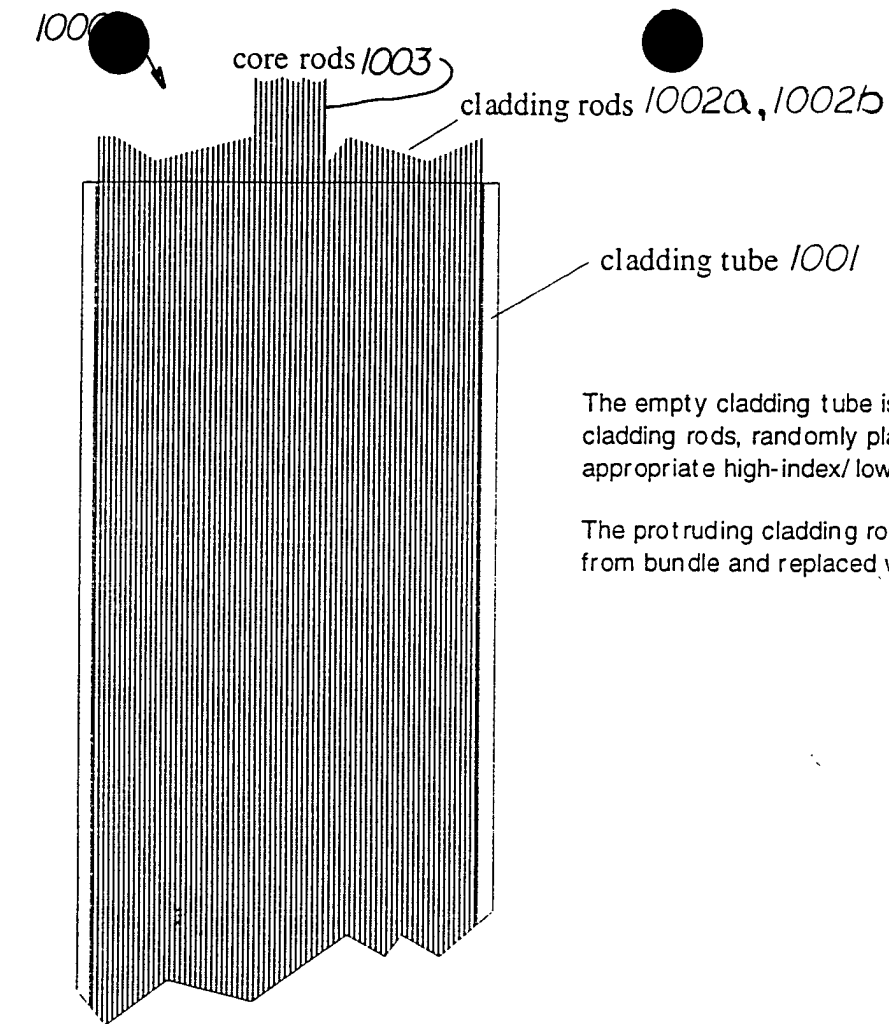


Oval Core

FIG. 8D

Prior Art

A circular halftone pattern composed of black dots of varying density on a white background. The pattern is radially symmetric, with the highest density of dots at the center, forming a dark, cross-like shape. This central shape is surrounded by concentric rings of dots that become progressively sparser as they move toward the outer edge of the circle. The overall effect is a grayscale gradient that is darkest in the center and lightest at the periphery.



The empty cladding tube is packed full of cladding rods, randomly placed and in appropriate high-index/ low-index ratio.

The protruding cladding rods are pulled from bundle and replaced with core rods.

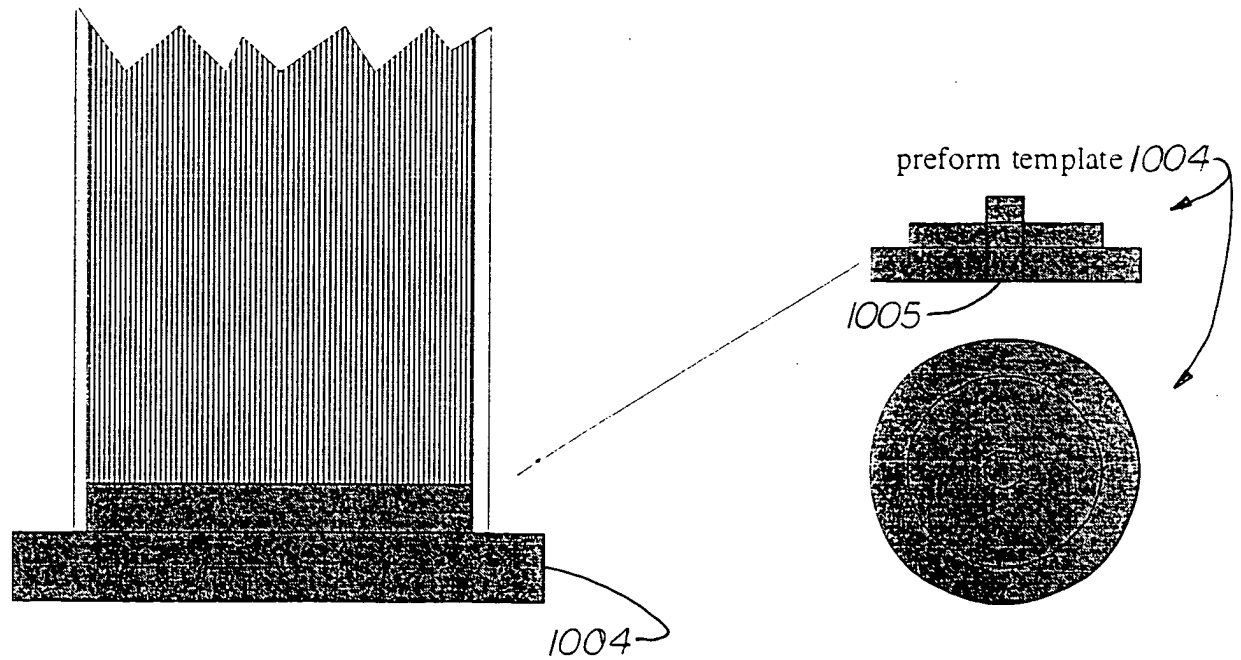


FIG. 10

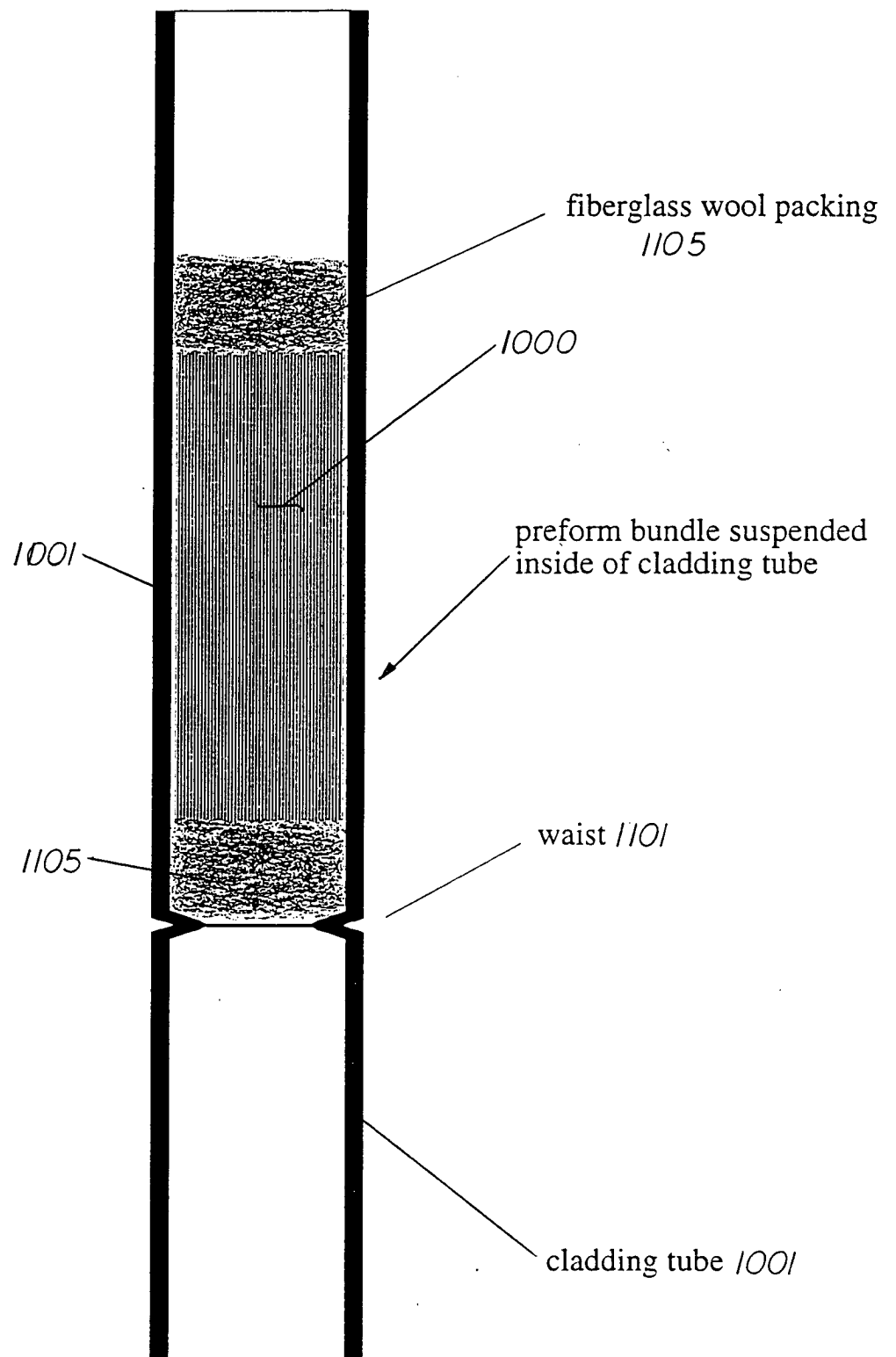


FIG. 11

fiberglass wool packing
1105

1200

inside of ampule evacuated

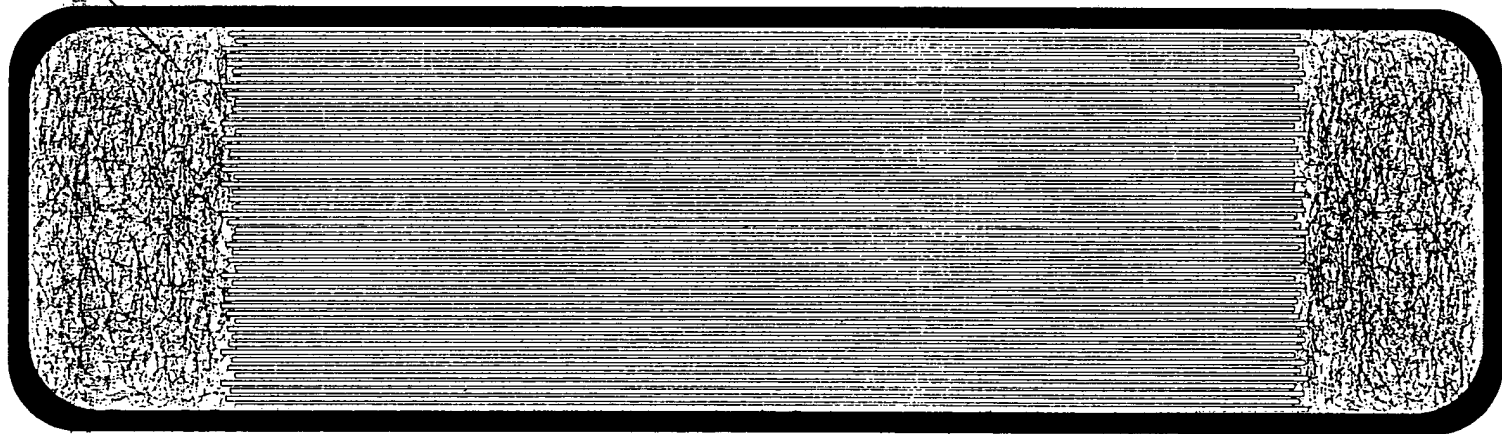


FIG. 12

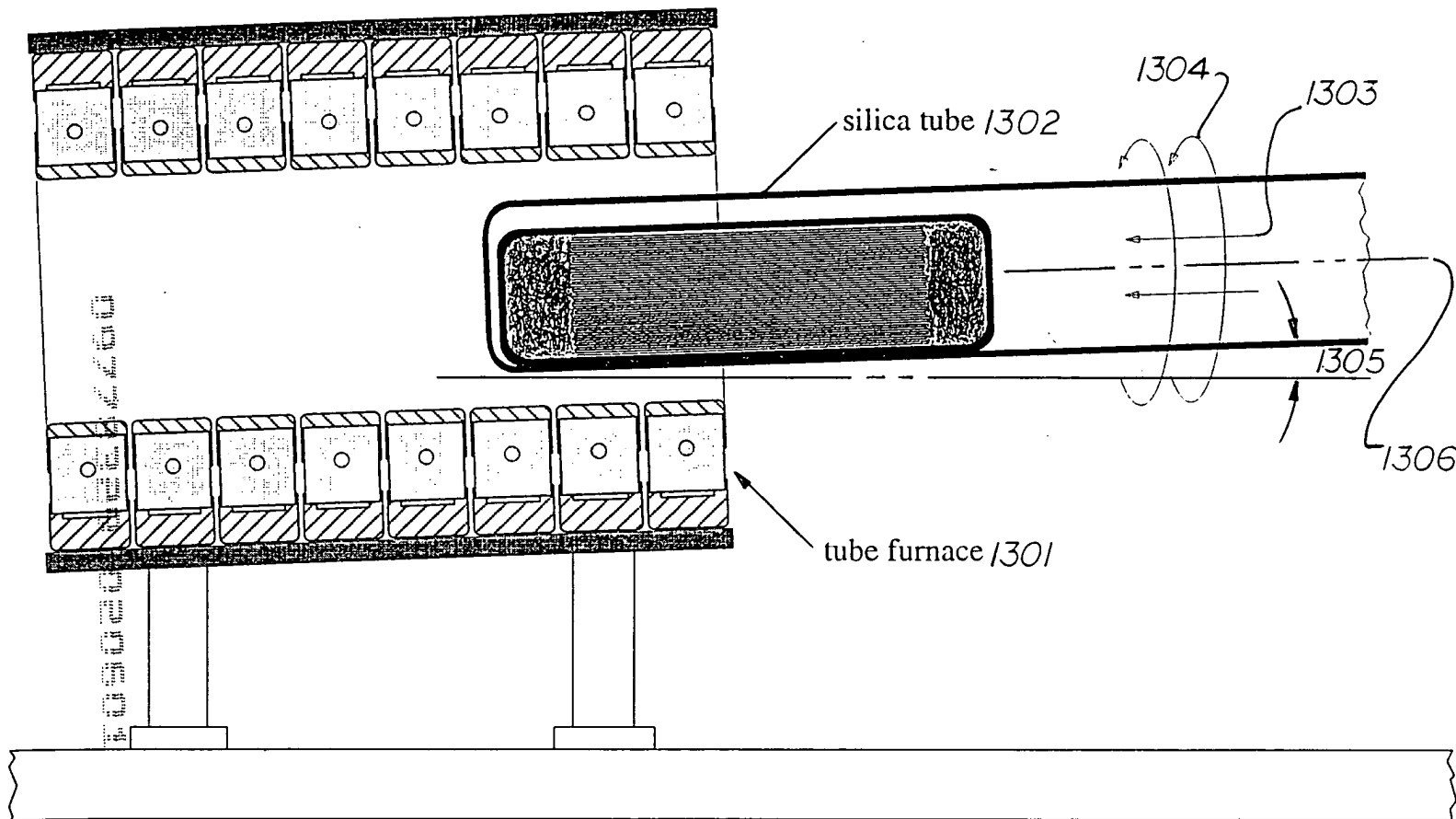
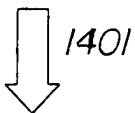


FIG. 13

vapor stream from conventional
MCVD gas delivery system



collection tube
1402

tube furnace
1403

1404

1405

coolant bath

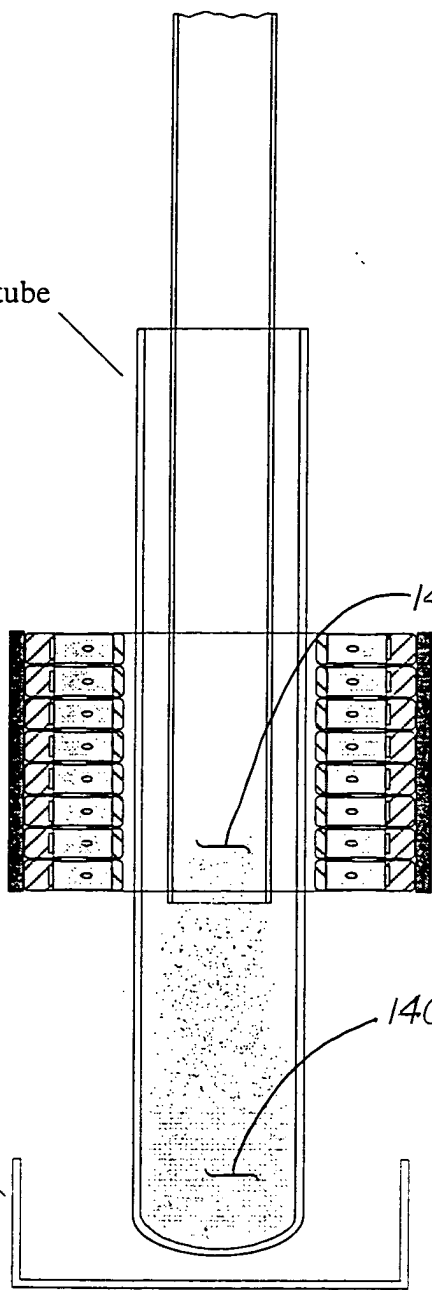


FIG. 14

FIG. 15

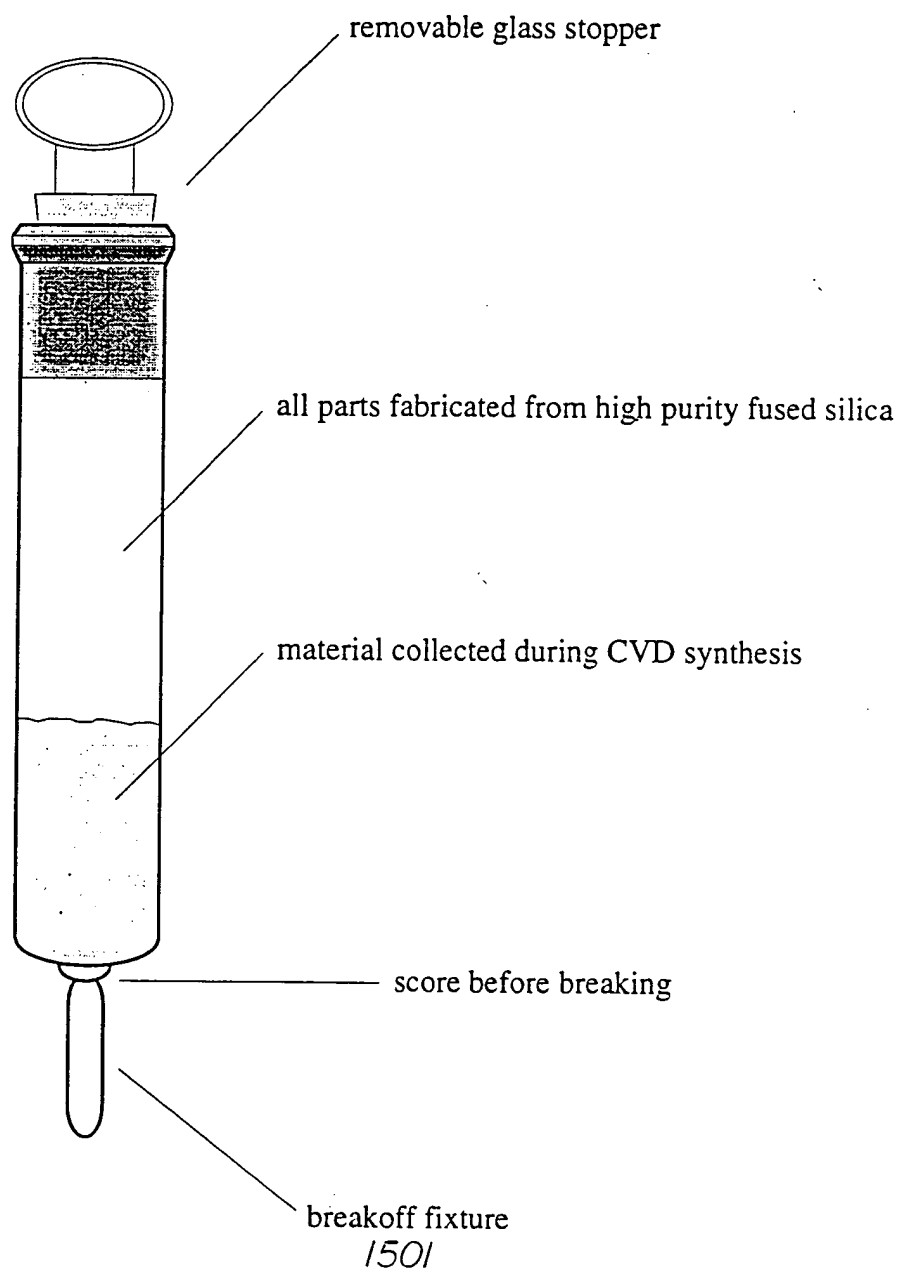


FIG. 15